

## WHAT IS CLAIMED IS:

1           1. Apparatus for a communication station operable in a  
2 wireless communication system at least to receive first data  
3 signals transmitted thereto by a first subscriber station and at  
4 least second data signals transmitted thereto by at least a second  
5 subscriber station, said apparatus comprising:

6           a first demodulator selectably coupled to receive at  
7 least one of the first data signals and the second data signals  
8 transmitted to the communication station by the first subscriber  
9 station and by the second subscriber station, respectively;

10           at least a second demodulator also selectably coupled to  
11 receive at least one of the first data signals and the second data  
12 signals transmitted to the communication station by the first  
13 subscriber station and by the second subscriber station,  
14 respectively; and

15           a controller, coupled to said first demodulator and to  
16 said at least second demodulator in a feedback arrangement, said  
17 controller at least for selecting which of the first and second  
18 data signals, respectively, are applied to said first demodulator  
19 and for selecting which of the first and second data signals,  
respectively, are applied to said second demodulator.

1           2.    The apparatus of Claim 1 wherein the wireless  
2   communication system comprises a fixed wireless access system,  
3   wherein the communication station comprises a base station of the  
4   fixed wireless access system in which the data signals transmitted  
5   thereto by the first subscriber station comprise first uplink burst  
6   data signals and the data signals transmitted thereto by the second  
7   subscriber station comprise second uplink burst data signals, said  
8   first demodulator embodied at a first modem.

          3.    The apparatus of Claim 2 wherein said second demodulator  
is embodied at a second modem.

          4.    The apparatus of Claim 1 wherein the at least the second  
subscriber station comprises a plurality of subscriber stations and  
wherein said controller selects to which of said first demodulator  
and said second demodulator that the first data signals and the at  
least second data signals are applied according to a selected  
pattern.

1           5.    The apparatus of Claim 4 wherein the selected pattern  
2    according to which said first demodulator and said second  
3    demodulator receive the first and at least second data signals  
4    comprise alternately coupling said first demodulator and said  
5    second demodulator to receive, selectably, the first and at least  
6    second data signals communicated by alternating ones of the  
7    plurality of subscriber stations.

6.    The apparatus of Claim 1 wherein the first and at least  
second data signals transmitted to the communication station by the  
first and at least second subscriber stations are transmitted in  
bursts of selected time durations and wherein said controller  
further determines times of arrival and time directions of the  
bursts which form the data signals.

1           7.    The apparatus of Claim 1 wherein said controller further  
2 comprises a memory portion, said controller further for maintaining  
3 profiles associated with each of the first and at least second data  
4 signals transmitted upon first and at least second channels,  
5 respectively, the profiles stored at the memory portion of said  
6 controller.

1           8.    The apparatus of claim 7 wherein the profiles maintained  
2 at the memory portion of said controller comprise at least one  
3 channel-related parameter associated with the first and at least  
4 second channels upon which the first and at least second data  
5 signals are communicated, respectively.

1           9.    The apparatus of claim 8 wherein said first demodulator  
2 and said second demodulator each include equalizer portions for  
3 equalizing the at least one of the first and second data signals  
4 selectably applied to said first demodulator and said second  
5 demodulator, respectively.

1           10. The apparatus of claim 9 wherein the filter weight values  
2 form portions of the profiles maintained by said controller and  
3 stored at the memory portion thereof.

1           11. The apparatus in claim 7 wherein the profiles maintained  
2 at the memory portion of said controller comprise at least one  
3 signal-related parameter associated with the first and at least  
4 second data signals, respectively.

1           12. The apparatus of claim 11 wherein the first and at least  
2 second data signals are characterized by modulation indexes, and  
3 wherein values of the modulation indexes form portions of the  
4 profiles maintained by said controller and stored at the memory  
5 portion of said controller.

1           13. The apparatus of claim 11 wherein the first and at least  
2 second data signals are characterized by modulation  
3 orthogonalizations and wherein values of the modulation  
4 orthogonalizations form portions of the profiles maintained by said  
controller and stored at the memory portion of said controller.

1           14. The apparatus of claim 11 wherein the first and at least  
2 second data signals include FEC (forward error correction), the FEC  
3 characterized by FEC parameters and wherein values of the FEC  
4 parameters form portions of the profiles maintained by said  
5 controller and stored at the memory portion of said controller.

1           15. The apparatus of claim 7 wherein the communication  
2 station to which the first and at least second data signals are  
3 transmitted by the first ant at least second subscriber stations,  
4 respectively, exhibits antenna diversity provided by a first  
5 antenna transducer and at least a second antenna transducer, the  
6 first and at least second data signals transduced by the first and  
7 at least second antenna transducer, respectively, combined  
8 utilizing antenna combining parameters, and wherein the antenna  
9 combining parameters form portions of the profiles maintained by  
10 said controller and stored at the memory portion of said  
11 controller.

1           16. The apparatus of Claim 7 wherein profiles maintained by  
2           said controller and stored at the memory portion thereof comprise  
3           values of Band timing adjustments by which to adjust the first and  
4           at least second data signals.

1           17. The apparatus of Claim 7 wherein profiles maintained by  
2           said controller and stored at the memory portion thereof comprise  
3           values of residual carrier adjustments by which to adjust the first  
4           and at least second data signals.

1           18. A method for acting upon data signals transmitted to a  
2 communication station operable in a wireless communication system  
3 by a first subscriber station and at least a second subscriber  
4 station, said method comprising:

5           selecting at which of a first demodulator and at least a  
6 second demodulator to apply at least one of the first data signals  
7 and the at least the second data signals;

8           demodulating the at least one of the first and at least  
9 second data signals at the first demodulator when the first  
10 demodulator is selected during said operation of selecting; and

11           demodulating the at least one of the first and at least  
12 second data signals at the second demodulator when the second  
13 demodulator is selected during said operation of selecting.

14           19. The method of claim 18 wherein selections made during  
15 said operation of selecting are made according to a selected  
16 pattern.



1           20. The method of claim 18 further comprising the operation  
2 of maintaining profiles associated with each of the first and at  
3 least second data signals transmitted upon the first and at least  
4 second channels, respectively, and wherein said operations of  
1 demodulating further comprise accessing the profiles.